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Remarks

This application has been reviewed in light of the Office Action of April 19, 2006. Claims 1-21 are pending. Claims 6-10 and 16 are objected to, and claims 1-5, 11-15, and 17-21 are rejected. In response, the following remarks are submitted. Reconsideration of this application, as amended, is requested.

This Office Action is improperly made final. None of the claims that are newly rejected under sec. 103 were amended in the prior Amendment. Claim 5 was not rejected at all in the prior Office Action, and it is newly rejected now under both the new sec. 102 rejection and the new sec. 103 rejection. A new Office Action must be issued in a non-final form, so that Applicant can freely amend the claims.

Ground 1. Claims 1-5, 11-15, and 17-21 are rejected under 35 USC 102 as anticipated by Hou US patent 6,596,979. Applicant traverses this ground of rejection.

The following principle of law applies to sec. 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim which is not disclosed in the reference is sufficient to overcome a Sec. 102 rejection.

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The explanation of the rejection has changed significantly, and now focuses on the embodiments of Figures 2-3 and Figure 10 of Hou, discussed at col. 9, line 52 et seq.

Each of claims 1 and 13 recites in part:

"an optics system that images a point feature of a scene at an image plane as a blur-circle image having a blur diameter"

Applicant can find no such disclosure in Hou of "an optics system that images a point feature of a scene at an image plane as a blur-circle image having a blur diameter"

There is no disclosure in Hou of a blurred image of a point feature of a scene, such as discussed in para. [0034] of the present Specification and recited in claims 1 and 13. Hou refers only to "scanning dots" such as the scanning dots 960, 968, 970 in Figure 10, which Hou refers to as a "spot on the scanning" and would appear to correspond to the exact feature of the scene being imaged. Hou makes no disclosure that the "scanning dot" is the blurred image of a point in the scene. Hou leaves the meaning of "scanning dot" undefined and unclear, but because of Hou's interest in scanner devices (col. 1, lines 14-36) that use illumination systems, it is most likely that the "scanning dot" is an illumination dot, not a blurred image of a point in the scene. If the examiner has any information on any other meaning of "scanning dot", Applicant asks that it be made of record.

In the paragraph bridging pages 8-9 of the Office Action, it is argued that "The blur circle...is disclosed by Hou due to the fact that the degree of blur of a point feature (scanning dot) depends on the degree of aberration and diffraction of the lenses (rod lens array (208) in Fig. 1 and optical lens (274) in Fig. 2B)." Applicant has carefully reviewed the portions of Hou that deal with these elements, and can find no express mention of "blur-circle image having a blur diameter". There is also no mention of either aberration or diffraction. The Response does not give a location where the disclosure is said to be found. In the next Office Action, Applicant asks that, if the

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rejection is maintained, the examiner indicate the precise location in Hou where he finds the express disclosure of "blur-circle image having a blur diameter", and the discussion of aberration and/or diffraction.

In any event, MPEP 2131 requires that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference..." Hou has no disclosure that the scanning dots meet the "blur-circle image" and "blur diameter" language of claims 1 and 13.

Claim 1 further recites in part:

"...the detector array is a one-dimensional detector array comprising a plurality of detector subelements each having a width of from about 1/2 to about 5 blur diameters, and a length of n blur diameters,..."

The detector array disclosed in Figure 10 and discussed at col. 9, lines 52 et seq. is a two-dimensional detector array, not a one-dimensional detector array as recited in claim 1.

The explanation of the rejection (page 2, last line-page 3, line 2) asserts that this limitation is disclosed at col. 10, lines 12-18 of Hou. There is no such disclosure at this location or any other location of Hou. Applicant has carefully read col. 10, lines 12-18, and finds not even a remote suggestion of such a limitation. This portion of Hou says nothing about the dimensions of detector elements relative to the diameters of the circles 960, 968, and 970 or relative to blur diameters. Col. 10, lines 2-18 of Hou observes that when one of the circles overlaps three photodetectors in Figure 10, it overlaps three photodetectors so that each of the three photodetectors generates an output signal.

Further, Hou makes it very clear that there is no attempt to describe or illustrate the scanning dots 960, 968, 970 as having any particular size or dimensions relative to the detector sizes. Hou states that "It should be noted that scanning dot 960, 968, and 970 are for illustration only" and states that the each scanning dot "corresponds to a group of photodetectors". (col. 10, lines 13-18) These statements must be read in

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conjunction with Hou's disclosure that "the arrangement of rows of photodetectors is made in such manner that at any exposure, three colored photodetectors will be exposed." (col. 9, line 67-col. 10, line 2) As long as the scanning dot overlaps three colored photodetectors at some point, Hou's disclosure is met.

In the first full paragraph on page 9 of the Office Action, it is argued that the structure shown in Figure 10 is a one-dimensional array. No, it really is not. If the examiner will look at Figure 10, he will see that it is a two-dimensional array. The two-dimensional array may be described as an assembly of staggered one-dimensional arrays, but in totality it is a two-dimensional array.

In short, Hou presents no concept of the size of photodetectors in relation to a blurred point image. The reading of Hou in the explanation of the rejection is made only in light of the present disclosure, which takes a much more sophisticated approach to the designing of photodetector dimensions in relation to the blurred image produced by the optics system.

Claim 1 further recites in part:

"wherein an overlap of each of the two adjacent detector subelements is m blur diameters and a center-to-center spacing of each of the two adjacent detector subelements is n_0 blur diameters, wherein n is equal to about $3m$ and m is equal to about $n_0/2$."

Although the explanation of the rejection argues at page 3, lines 5-11 that this limitation is somehow disclosed in Hou, there is no such disclosure for several reasons. First, Hou does not disclose a blur diameter at all, in any context. Second, Hou discusses the overlap of adjacent photodetectors in terms of the size of the photodetector, not in terms of blur diameters. Third, Hou has no mention of the spacing of adjacent detector subelements in terms of blur diameters.

The second full paragraph on page 9 of the Office Action references col. 9, lines 59-61. This portion of Hou says that each row of the staggered two-dimensional array of Hou shown in Figure 10 is staggered by $1/2$ of the detector size. This has no relation

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to a blur diameter of a point image on the detector, but instead is related only to the detector dimension.

Regarding claims 2-4, Hou does not mention these recited relationships or a blur diameter in any manner. The explanation of the rejection in the first three full paragraphs on page 3 references col. 10, lines 12-18 for these relations. There is nothing like the claim recitations in these pages.

The third full paragraph on page 9 of the Office Action asserts that "The relationships or blur diameters can be derived from the size relationships disclosed in col. 9, lines 59-61." There are two responses. First, that is not what a sec. 102 rejection is about. The reference must disclose the recited elements in the manner defined by the claim, not provide a basis by which they may be derived in a hindsight reconstruction. Second, Applicant asks that the examiner set forth that derivation in the next office action, if the rejection is maintained. It will be highly instructional to see how the relationships involving blur diameter can be derived solely from what is written in Hou, which makes no mention of blur diameter.

As discussed earlier, claim 13 does not disclose "an optics system that images a point feature of a scene at an image plane as a blur-circle image having a blur diameter".

At page 10 of the Office Action, first full paragraph, it is asserted that Hou discloses "blur-circle image" and "blur-circle diameter" at col. 10, lines 3-18. There is no such concept disclosed here or elsewhere in Hou.

Claim 13 further recites in part:

"...detector subelements are sized responsive to the blur diameter..."

Hou does not disclose a blur diameter, and certainly does not disclose or suggest that the photodetectors are sized in any manner responsive to a blur diameter.

The fourth full paragraph on page 9 of the Office Action asserts that the limitations of claim 13 are found at col. 9, lines 59-61 of Hou. This portion of Hou says

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that each row of the staggered two-dimensional array of Hou shown in Figure 10 is staggered by 1/2 of the detector size. This has no relation to a blur diameter of a point image on the detector, but instead is related only to the detector dimension.

Claim 17 recites in part:

“cooperatively analyzing the output signals from at least two spatially adjacent array subelements

to establish a data set reflective of an extent to which output signals responsive to the image of the feature are produced from exactly one or from more than one of the adjacent array subelements, and

to reach a conclusion from the data set as to a location of the image of the feature on the segmented array.”

The explanation of the rejection (paragraph bridging pages 4-5) suggests that this limitation is disclosed in relation to Figures 2A-2B, 3, and 10, and specifically at col. 5 lines 27-60. Applicant respectfully disagrees. The logic illustrated in Figures 2A-2B and 3 has no capability for determining whether an output signal responsive to the image is produced from exactly one or from more than one adjacent array subelement. The discussion of the logic at col. 5, lines 47-62 disclosing sampling each photodetector individually. There is no mention of any sampling device or logic for determining whether exactly one or more than one of the adjacent photodetectors is producing an output signal.

The Office Action at page 10, third full paragraph argues that this disclosure is found at col. 10, lines 19-31. This portion of Hou discloses only the accumulation of signal data, but does not suggest that there should be a determination of “a data set reflective of an extent to which output signals responsive to the image of the feature are produced from exactly one or from more than one of the adjacent array subelements”.

The explanation of the approach of Figure 10 seems to say that the intensities of all of the red signals are added together to produce an accumulated red signal, all of

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the green signals are added together to produce an accumulated green signal, and all of the blue signals are added together to produce yet another accumulated red signal (col. 10, lines 19-26). Applicant does not understand why that is done, but in any event there is no disclosure of the above-quoted limitation of claim 17.

The Office Action argues, at page 10, second full paragraph, that Hou discloses the cooperative analyzing limitations at col. 5, lines 4-9. There is no disclosure of this limitation at that location or elsewhere in Hou.

The fourth full paragraph on page 10 of the Office Action argues that Hou discloses all of the claim limitations of claim 17 at col. 5, lines 27-35; col. 5, lines 48-57; and col. 5, lines 57-60, in addition to Figures 2A-2B, 3, and 10. Col. 5, lines 27-35 discloses the formation of the signal. Col. 5, lines 48-57 discloses the integration of the data. Col. 5, lines 57-60 discloses the readout of the image. The Figures are in support. Nowhere in this discussion, or elsewhere in Hou, is there any mention of the terms or the concepts of "exactly one" or "more than one" as recited in claim 17.

Claim 20 recites in part:

"...the step of forming an image includes the step of forming the image having a diameter of one blur diameter"

Hou has no such disclosure, because Hou does not disclose blur diameters and because Hou does not disclose forming an image having a diameter of one blur diameter.

The Office Action at page 10, fourth full paragraph, argues that the limitations of claim 20 are found at col. 9, lines 21-24 of Hou. There is no mention of blur diameters or one blur diameter at this location or elsewhere in Hou.

Applicant asks that the examiner reconsider and withdraw this ground of rejection.

Ground 2. Claims 1-5 are newly rejected under 35 USC 103 over Carnall US Patent 5,065,245 in view of Hou '979. Applicant traverses this ground of

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rejection.

MPEP 2142, under ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS, provides: "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. [citations omitted]. See MPEP para 2143-2143.03 for decisions pertinent to each of these criteria."

The first of the requirements of MPEP 2142 is that "there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings". The present rejection is a sec. 103 combination rejection. To reach a proper teaching of an article or process through a combination of references, there must be stated an objective motivation to combine the teachings of the references, not a hindsight rationalization in light of the disclosure of the specification being examined. MPEP 2142, 2143 and 2143.01. See also, for example, In re Fine, 5 USPQ2d 1596, 1598 (at headnote 1) (Fed.Cir. 1988), In re Laskowski, 10 USPQ2d 1397, 1398 (Fed.Cir. 1989), W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 311-313 (Fed. Cir., 1983), and Ex parte Levengood, 28 USPQ2d 1300 (Board of Appeals and Interferences, 1993); Ex parte Chicago Rawhide Manufacturing Co., 223 USPQ 351 (Board of Appeals 1984). As stated in In re Fine at 5 USPQ2d 1598:

"The PTO has the burden under section 103 to establish a prima facie case of obviousness. [citation omitted] It can satisfy this burden only by

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showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references."

And, at 5 USPQ2d 1600:

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."

Following this authority, the MPEP states that the examiner must provide such an objective basis for combining the teachings of the applied prior art. In constructing such rejections, MPEP 2143.01 provides specific instructions as to what must be shown in order to extract specific teachings from the individual references:

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992)."

* * * * *

"The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)."

* * * * *

"A statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references

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relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd.Pat.App.& Inter. 1993)."

Here, there is set forth no objective basis for combining the teachings of the references in the manner used by this rejection, and selecting the helpful portions from each reference while ignoring the unhelpful portions. An objective basis is one set forth in the art or which can be established by a declaration, not one that can be developed in light of the present disclosure. In this case, the teachings of Hou cannot be combined with those of Carnall due to the different geometries and analytical procedures taught by the two references. If the rejection is maintained, Applicant asks that the Examiner set forth the objective basis found in the references themselves for combining the teachings of the references, and for adopting only the helpful teachings of each reference and disregarding the unhelpful teachings of the reference. Thus, as it stands now, the invention as a whole is not prima facie obvious over the combined teachings of the prior art.

The second of the requirements of MPEP 2142 is an expectation of success. There is no expectation of success...This requirement has not been addressed in the explanation of the rejection, and in any event more than Examiner's argument is required here.

As stated in MPEP 2142, "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. [citations omitted]."

The third of the requirements is that "the prior art reference (or references when combined) must teach or suggest all the claim limitations." In this regard, the following

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principle of law applies to all sec. 103 rejections. MPEP 2143.03 provides "To establish prima facie obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)." [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art references clearly do not arguably teach some limitations of the claims.

Claim 1 recites in part:

"an optics system that images a point feature of a scene at an image plane as a blur-circle image having a blur diameter;"

Neither reference teaches or even mentions "blur-circle image" or "blur diameter" at all, in any way. If the rejection is maintained, Applicant asks that the examiner indicate the precise source in Carnall for these teachings.

Claim 1 further recites in part:

"the detector array is a one-dimensional detector array comprising a plurality of detector subelements each having a width of from about 1/2 to about 5 blur diameters, and a length of n blur diameters,"

Neither reference teaches these limitations. The explanation of the rejection asserts that Carnall teaches these limitations, but points to no location in the reference as a source of the teachings. If the rejection is maintained, Applicant asks that the examiner indicate the precise source in Carnall for these teachings.

Claim 1 further recites in part:

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"wherein an overlap of each of the two adjacent detector subelements is m blur diameters and a center-to-center spacing of each of the two adjacent detector subelements is n_0 blur diameters, and wherein n is equal to about $3m$ and m is equal to about $n_0/2$."

Neither reference teaches these limitations. The explanation of the rejection asserts that Carnall teaches these limitations, but points to no location in the reference as a source of the teachings. If the rejection is maintained, Applicant asks that the examiner indicate the precise source in Carnall for these teachings.

In the paragraph bridging pages 6-7 of the Office Action, its the same thing. Quotations from the present claims about what Carnall teaches, without any sources in Carnall. Neither Carnall nor Hou teaches the limitations of claims 2-5.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Applicant submits that the application is in condition for allowance, and requests such allowance.

Respectfully submitted,



William Schubert

Reg. No. 30,102

Attorney for Applicant

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